Trend Study 24-5-97

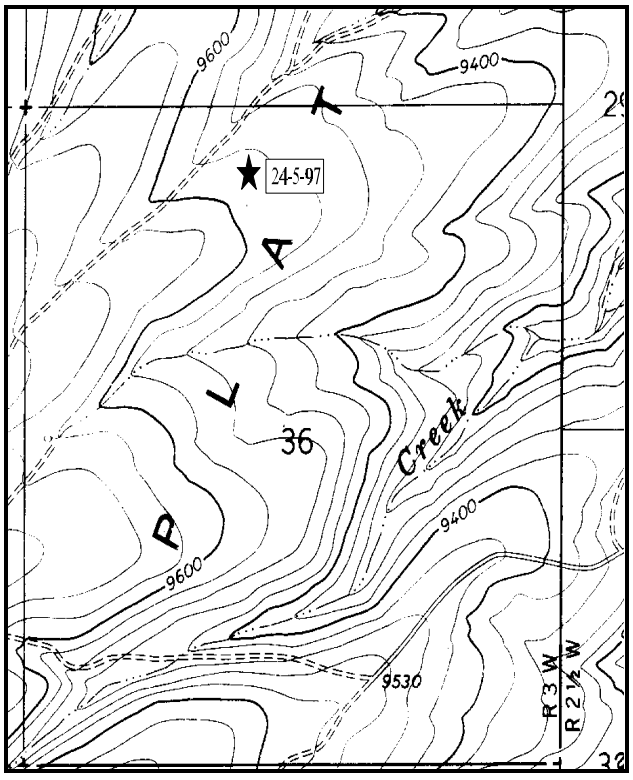
Study site name: Suicide . Range type: Mountain Big Sage/Grass-Forb.

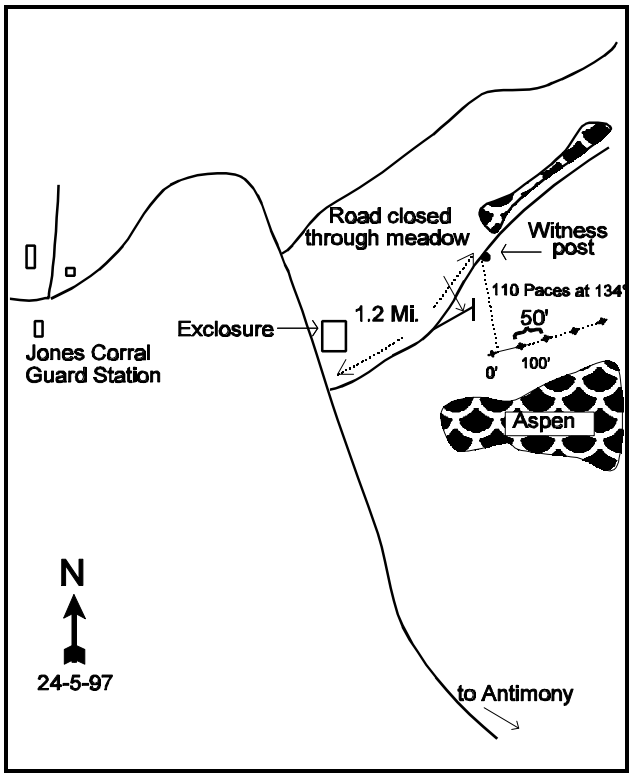
Compass bearing: frequency baseline 65 degrees.

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

Take the Mt. Dutton road (#125), either south from Antimony or north from Cottonwood AS, towards Jones Corral Guard Station. Turn west off of #125 towards the guard station. Proceed 1.2 miles to an intersection by an exclosure. Turn right and go 1.2 miles along a road above a meadow area (the lower road is closed by dozer piles). There is a witness post on the right side of the road to mark the study area. From this witness post, walk approximately 110 paces southeast across the stream bottom and up the hillside to the short fencepost tagged #7166. The transect runs northeast (65°) from here.





Map Name: Mt. Dutton Diagrammatic Sketch

Township 31S , Range 3W , Section 36 UTM 4215335.120 N, 399681.269 E

DISCUSSION

Trend Study 24-5 (50-5)

The Suicide study site is located at an elevation of 9,500 feet and approximately one mile northeast of the Jones Corral Guard Station. The vegetation type is mountain big sagebrush/forb-grass, which is adjacent to small and large continuous stands of aspen. The site is on a moderate slope of 25% with a north-northwest aspect. This area is representative of many of the sagebrush-grass/aspen areas in the vicinity of Jones Corral. A considerable amount of forage is available adjacent to the aspen cover. It is a key use area for elk during the summer and fall. The area is also utilized by cattle with several stock ponds in the immediate area. Pellet group data from 1997 estimate 16 deer, 23 elk and 29 cow use days/acre. Local community pressure is limited to the roads, but is probably higher within the vicinity of the guard station than elsewhere on the mountain.

The soil is a dark brown loam with a moderately acidic pH (6.2). The soil contains a high level of organic matter (5.7%), the highest level on the unit. There is an abundance of rocks of various sizes on the surface and in the profile. Effective rooting depth (see methods) is estimated at nearly 14 inches. The vegetative cover is continuous and intact and serves to limit erosion. Litter buildup has occurred, which also helps slow down erosion. Good vegetation and litter cover, coupled with fairly well drained soils, has allowed this area to maintain a stable to improving soil trend. The Forest Service has implemented a road maintenance plan in this area. Several unnecessary roads have been closed in the drainage and revegetated in an effort to limit soil erosion point sources.

The herbaceous vegetation is dominated by a mountain big sagebrush overstory which currently produces nearly 20% cover, or 60% of the browse cover. Sagebrush density is fairly high and increasing with 4,532 plants/acre estimated in 1987, 6,932 plants/acre in 1991 and 16,680 by 1997. Density of mature plants remained similar at 3,020 plants/acre in 1997. The decadency rate has decreased from 43% in 1987 to 15% in 1991, and to only 2% in 1997. Vigor has improved and utilization has declined from moderate to only light use. Some of the change in density may be due to the larger sample used in 1997, but it is obvious that the sagebrush population has steadily increased since 1987. The overabundance of sagebrush seedlings and young is likely caused by the removal of the competitive herbaceous understory by livestock combined with optimum precipitation conditions for seedling establishment. Right now, 79% of the population is contributed by the young age class. Obviously, many of these seedlings and young sagebrush will not survive, but any future increase in the shrub canopy cover will only further reduce the herbaceous understory which is important for wildlife as well as livestock.

Snowberry is the second most abundant shrub and has also increased in density with 1,799 plants/acre reported in 1987 increasing to 6,200 plants/acre in 1991. The much larger sample size used in 1997 estimated a lower density of 2,400 plants/acre, 80% of which are mature plants. Utilization was moderate to heavy in 1987, light to moderate in 1991, and mostly light in 1997. Vigor has been good over the years and percent decadence low. The larger sample used in 1997 also picked up some heavily used bitterbrush. Density is estimated at 480 plants/acre, 71% of which are mature. The increaser, stickyleaf low rabbitbrush, has remained at a similar density of around 1,200 plants/acre. Currently, the population is mostly mature and does not appear to be increasing.

The understory is rich in species diversity and abundance. Eleven grasses and 26 forbs were encountered on the site in 1997. Grasses combine to produce almost 12% cover, while forbs add another 17% cover. The key grasses include: a Carex, Letterman needlegrass, and a combination of Sandberg and mutton bluegrass. These grasses were all classified as Sandberg bluegrass in 1987 and 1991. Low growing increaser forbs including dandelion, Eaton fleabane, rose pussytoes, and cinquefoil are numerous, but silvery lupine is the dominate forb.

1991 TREND ASSESSMENT

Soil trend is slightly downward because of increase in bare ground (it doubled), rock, and pavement, with an accompanying decline in litter cover. Both key browse species increased. Of importance was the increase in mountain big sagebrush (35%), decrease in decadency (43% down to 15%), and reproductive potential increasing (<1% up to 19%). Heavy hedging has increased slightly, yet vigor has also improved. Trend for browse is up. Trend for herbaceous understory is also up slightly with most grasses and forbs increasing in nested frequency values.

TREND ASSESSMENT
soil - slightly downward
browse - up
herbaceous understory - slightly upward

1997 TREND ASSESSMENT

Trend for soil is stable with similar ground cover characteristics compared to 1991. Trend for the key browse species, mountain big sagebrush, is up with a similar density of mature plants compared to 1991. Also, the reproductive potential dramatically increased from 19% to 62% coupled with an increase in the proportion of young plants from 37% to 79%. In addition, utilization is lighter, vigor improved, and percent decadency is down from 15% to only 2%. Any increase in sagebrush density or cover will come at the expense of grasses and forbs. Other preferred browse species, bitterbrush, and snowberry appear to have stable populations. Since this site is used in the spring and summer the herbaceous understory is the most important aspect of this site. Trend for grasses and forbs is down with declining sum of nested frequencies for both. The only grasses which increased in nested frequency are prairie Junegrass and Letterman needlegrass. Most of the forbs also show a decrease in nested frequency. Composition is also poor with many of the forbs consisting of weedy increasers.

TREND ASSESSMENT
soil - stable
browse - up
herbaceous understory - down

HERBACEOUS TRENDS --
Herd unit 24 , Study no: 5

Type	Species	Nested Frequency '87	'91	'97	Quadrat Frequency '87	'91	'97	Average Cover % '97
G	Agropyron trachycaulum	$_{b}$89	$_{b}$53	$_{a}$28	41	27	13	.29
G	Bouteloua gracilis	-	1	-	-	1	-	-
G	Bromus anomalus	$_{c}$193	$_{b}$112	$_{a}$8	76	49	3	.05
G	Carex obtusata	$_{a}$124	$_{b}$167	$_{ab}$144	52	61	51	2.95
G	Elymus spp.	-	1	-	-	1	-	-
G	Festuca ovina	$_{b}$158	$_{c}$201	$_{a}$65	66	76	25	.61
G	Koeleria cristata	$_{a}$46	$_{b}$108	$_{b}$115	23	40	43	1.30
G	Muhlenbergia spp.	2	3	-	1	3	-	-
G	Poa fendleriana	$_{a}$-	$_{a}$-	$_{b}$127	-	-	51	1.87

Type	Species	Nested Frequency '87	'91	'97	Quadrat Frequency '87	'91	'97	Average Cover % '97
G	Poa pratensis	-	-	3	-	-	1	.03
G	Poa secunda	$_{b}$229	$_{b}$230	$_{a}$86	80	82	30	1.24
G	Sitanion hystrix	$_{b}$108	$_{b}$137	$_{a}$51	47	62	25	.26
G	Stipa comata	$_{b}$101	$_{b}$119	$_{a}$47	37	46	18	.78
G	Stipa lettermani	$_{a}$39	$_{a}$22	$_{b}$86	13	9	32	2.19
Total for Grasses		1089	1154	760	436	457	292	11.60
F	Achillea millefolium	$_{b}$50	$_{b}$52	$_{a}$6	18	21	2	.18
F	Agoseris glauca	$_{a}$-	$_{c}$34	$_{b}$15	-	18	7	.03
F	Antennaria rosea	$_{b}$183	$_{ab}$70	$_{a}$155	69	64	60	4.53
F	Androsace septentrionalis (a)	-	-	6	-	-	4	.02
F	Artemisia dracunculus	-	-	3	-	-	1	.03
F	Arabis pulchra	$_{b}$61	$_{a}$9	$_{a}$5	26	3	2	.01
F	Astragalus argophyllus	$_{ab}$2	$_{b}$8	$_{a}$-	1	5	-	-
F	Astragalus miser	5	3	1	3	1	1	.00
F	Aster spp.	-	-	3	-	-	1	.00
F	Castilleja linariaefolia	-	-	2	-	-	2	.01
F	Calochortus nuttallii	-	-	1	-	-	1	.00
F	Collomia linearis (a)	-	-	9	-	-	3	.01
F	Comandra pallida	$_{b}$8	$_{a}$-	$_{a}$-	4	-	-	-
F	Crepis acuminata	3	3	-	1	1	-	-
F	Cruciferae	-	14	-	-	7	-	-
F	Cryptogramma	-	3	-	-	1	-	-
F	Cymopterus lemmonii	$_{b}$10	$_{ab}$6	$_{a}$-	5	3	-	-
F	Epilobium paniculatum (a)	-	-	10	-	-	4	.04
F	Erigeron eatonii	$_{a}$72	$_{b}$149	$_{a}$104	37	63	44	.94
F	Erigeron flagellaris	$_{b}$110	$_{b}$83	$_{a}$43	46	36	20	.64
F	Eriogonum racemosum	$_{a}$-	$_{a}$-	$_{b}$9	-	-	5	.05
F	Eriogonum umbellatum	$_{a}$1	$_{b}$13	$_{a}$3	1	6	1	.03
F	Euphorbia spp.	-	-	7	-	-	4	.04
F	Frasera speciosa	1	-	-	1	-	-	-
F	Lupinus argenteus	$_{a}$76	$_{b}$105	$_{a}$70	40	51	33	4.66
F	Lychnis drummondii	-	4	4	-	2	2	.01
F	Penstemon spp.	$_{a}$4	$_{b}$26	$_{a}$-	2	13	-	-
F	Phlox longifolia	$_{a}$18	$_{b}$43	$_{ab}$32	6	19	14	.09
F	Potentilla anersina	-	-	3	-	-	1	.03

Type	Species	Nested Frequency '87	'91	'97	Quadrat Frequency '87	'91	'97	Average Cover % '97
F	Potentilla diversifolia	55	53	67	25	23	27	1.89
F	Polygonum douglasii (a)	-	-	126	-	-	48	.54
F	Ranunculus inamoenus	$_{b}$15	$_{a}$-	$_{a}$-	6	-	-	-
F	Senecio multilobatus	-	-	2	-	-	2	.01
F	Taraxacum officinale	$_{b}$321	$_{b}$304	$_{a}$187	97	96	68	3.32
F	Thermopsis montana	14	3	4	5	1	2	.01
F	Tragopogon dubius	$_{c}$32	$_{b}$10	$_{a}$-	20	7	-	-
F	Trifolium nanum	$_{b}$9	$_{b}$15	$_{a}$-	4	6	-	-
F	Unknown forb-perennial	-	4	-	-	2	-	-
Total for Forbs		1050	1114	877	417	449	359	17.19

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 24 , Study no: 5

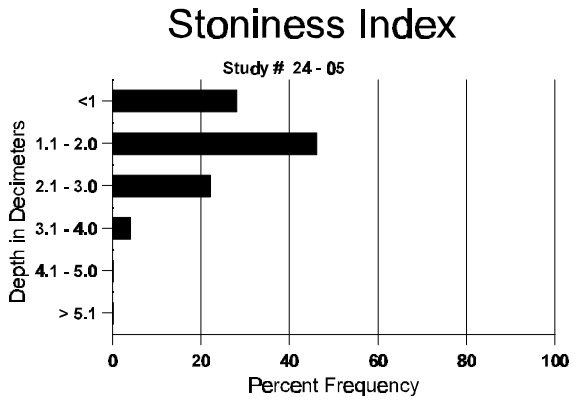
Type	Species	Strip Frequency '97	Average Cover % '97
B	Artemisia tridentata vaseyana	82	19.67
B	Chrysothamnus nauseosus albicaulis	12	.21
B	Chrysothamnus viscidiflorus viscidiflorus	38	1.97
B	Juniperus communis	6	-
B	Populus tremuloides	2	-
B	Purshia tridentata	14	3.26
B	Ribes spp.	2	.15
B	Rosa woodsii	2	-
B	Symphoricarpos oreophilus	56	7.59
B	Tetradymia canescens	2	-
Total for Browse		216	32.87

BASIC COVER --
Herd unit 24 , Study no: 5

Cover Type	Nested Frequency '97	Average Cover % '87	'91	'97
Vegetation	366	14.00	20.25	56.58
Rock	199	7.25	9.75	6.03
Pavement	263	1.75	6.25	7.90
Litter	391	70.25	49.00	45.49
Cryptogams	28	1.00	2.25	.44
Bare Ground	263	5.75	12.50	15.41

SOIL ANALYSIS DATA --
Herd Unit 24, Study no: 05

Effective rooting depth (inches)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
13.9	44.2 (16.2)	6.2	48.7	40.7	10.6	5.7	40.2	358.4	.6



PELLET GROUP FREQUENCY --
Herd unit 24 , Study no: 5

Type	Quadrat Frequency '97
Rabbit	2
Elk	14
Deer	27
Cattle	6

BROWSE CHARACTERISTICS --
Herd unit 24 , Study no: 5

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier utahensis																		
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	93	78	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	None
'91	00%	00%	00%	None
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'87	0		-
	'91	0		-
	'97	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	87	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	91	9	-	-	11	-	-	-	-	-	20	-	-	-	1333			20
	97	510	-	-	14	-	-	-	-	-	524	-	-	-	10480			524
Y	87	13	10	-	-	-	-	-	-	-	23	-	-	-	1533			23
	91	12	11	1	7	-	-	7	-	-	38	-	-	-	2533			38
	97	642	-	-	15	-	-	3	-	-	660	-	-	-	13200			660
M	87	5	11	-	-	-	-	-	-	-	10	-	6	-	1066	17	17	16
	91	28	16	3	-	2	-	1	-	-	45	-	5	-	3333	17	17	50
	97	120	26	2	3	-	-	-	-	-	151	-	-	-	3020	24	33	151
D	87	17	11	1	-	-	-	-	-	-	24	-	5	-	1933			29
	91	11	4	1	-	-	-	-	-	-	10	-	1	5	1066			16
	97	19	1	-	3	-	-	-	-	-	14	-	-	9	460			23
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	1160			58

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	47%	01%	16%	+35%
'91	32%	05%	11%	+58%
'97	03%	.23%	01%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'87	4532		43%
	'91	6932		15%
	'97	16680		3%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus albicaulis																		
Y	87	9	-	-	-	-	-	-	-	-	9	-	-	-	600			9
	91	12	4	-	1	-	-	1	-	-	18	-	-	-	1200			18
	97	14	3	-	-	-	-	-	-	-	13	-	-	-	340			17
M	87	12	-	-	-	-	-	-	-	-	12	-	-	-	800	9	6	12
	91	2	4	6	1	-	-	-	-	-	13	-	-	-	866	10	14	13
	97	3	-	-	4	-	-	-	-	-	7	-	-	-	140	9	7	7
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	5	5	-	-	-	-	-	-	9	-	-	1	666			10
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	+49%
'91	32%	27%	02%	-82%
'97	13%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	1400	Dec:		0%
'91	2732			24%
'97	480			0%

Chrysothamnus viscidiflorus viscidiflorus																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	87	4	-	-	-	-	-	-	-	-	4	-	-	-	266			4
	91	2	1	-	1	-	-	2	-	-	6	-	-	-	400			6
	97	6	-	-	-	-	-	-	-	-	5	-	-	-	120			6
M	87	13	-	-	-	-	-	-	-	-	13	-	-	-	866	11	7	13
	91	6	-	-	5	-	-	1	-	-	12	-	-	-	800	10	10	12
	97	48	-	1	7	-	-	-	-	-	55	-	-	-	1120	12	14	56
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	3	4	1	-	-	-	-	-	-	4	-	1	3	533			8
	97	-	-	1	-	-	-	-	-	-	-	-	-	-	20			1
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	+35%
'91	19%	04%	15%	-27%
'97	00%	03%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	1132	Dec:		0%
'91	1733			31%
'97	1260			2%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Juniperus communis																		
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	7	-	-	4	-	-	-	-	-	11	-	-	-	220	9	3	11

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	None
'91	00%	00%	00%	Appeared
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'87	0	Dec:	-
	'91	0		-
	'97	380		-

Populus tremuloides																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	97	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
Y	87	-	2	-	-	-	-	-	-	-	1	-	1	-	133			2
	91	-	1	1	1	1	-	-	-	-	2	-	2	-	266			4
	97	-	1	-	2	-	-	-	-	-	3	-	-	-	60			3
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	1	-	-	-	-	-	-	-	-	-	1	66			1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	100%	00%	50%	+60%
'91	40%	40%	60%	-82%
'97	33%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'87	133	Dec:	0%
	'91	332		20%
	'97	60		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Purshia tridentata																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	1	-	-	1	-	-	-	20			1
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	3	1	1	-	-	1	-	-	7	-	-	-	140			7
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	8	8	1	-	-	17	-	-	-	340	27	48	17

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	None
'91	00%	00%	00%	Appeared
'97	46%	38%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'87	0	Dec:	-
	'91	0		-
	'97	480		-

Ribes spp.																		
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	1	-	-	-	-	-	-	-	1	-	-	-	20	40	50	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	None
'91	00%	00%	00%	Appeared
'97	50%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'87	0	Dec:	-
	'91	0		-
	'97	40		-

Rosa woodsii																		
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40	-	-	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	None
'91	00%	00%	00%	Appeared
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'87	0	Dec:	-
	'91	0		-
	'97	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Symphoricarpos oreophilus																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	87	2	2	4	-	-	-	-	-	-	8	-	-	-	533			8
	91	17	5	-	4	1	-	3	-	-	30	-	-	-	2000			30
	97	12	-	-	1	-	-	-	-	-	13	-	-	-	260			13
M	87	2	7	8	-	-	-	-	-	-	17	-	-	-	1133	14	13	17
	91	14	22	8	7	-	1	5	-	-	57	-	-	-	3800	15	19	57
	97	73	-	2	15	3	-	3	-	-	96	-	-	-	1920	16	32	96
D	87	-	1	1	-	-	-	-	-	-	2	-	-	-	133			2
	91	2	-	-	3	1	-	-	-	-	4	-	1	1	400			6
	97	4	-	1	6	-	-	-	-	-	10	-	-	1	220			11

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	37%	48%	00%	+71%
'91	31%	10%	02%	-61%
'97	03%	03%	.83%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	1799	Dec:		7%
'91	6200			6%
'97	2400			9%

Tetradymia canescens																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	-	-	-	1	-	-	1	-	-	-	20	11	11	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'87	00%	00%	00%	None
'91	00%	00%	00%	Appeared
'97	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'87	0	Dec:		-
'91	0			-
'97	80			-